

REMARKS

Claims 1, 2, 5-8, and 12-22 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

TITLE

The title of the invention was deemed not descriptive. A new title is provided herein that is clearly indicative of the invention to which claims are directed.

REJECTIONS UNDER 35 U.S.C. § 102

Claims 1, 2, and 5-8 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Solberg (U.S. Patent No. 6,147,401). This rejection is respectfully traversed. Notwithstanding, applicant amended claims 1 and 2.

As amended, claim 1 calls for the second semiconductor chip to be "directly mounted" on the first semiconductor chip "with an adhesive". In contrast, Solberg teaches a compliant element 58 having a compliant layer 61 interposed between the first microelectronic element 50 and the second microelectronic element 64. The configuration of Figs. 8-10 also show components interposed between the first and second microelectronic elements. As such, Solberg fails to teach or suggest the claimed second semiconductor chip directly mounted to the first semiconductor chip. Support for this arrangement can be found in Fig. 1 and paragraph 22.

Claim 1 also calls for the base member disposed between the second semiconductor chip and the substrate to be "laterally spaced apart" from the first

semiconductor chip. In contrast, Solberg teaches a compliant element 58 with a cutout region 62 intimately surrounding and engaging the edges 60 and rear surface 56 of the first microelectronic element 50. See column 8, lines 5-15. As such, Solberg fails to teach or suggest the claimed base member laterally spaced apart from the first semiconductor chip. Support for this arrangement can be found in Fig. 1 and paragraph 23.

Independent claim 2 calls for a second semiconductor chip directly mounted on the first semiconductor chip with an adhesive. As stated above with respect to independent claim 1, Solberg fails to teach or suggest this arrangement. Rather, a compliant layer 61 of the compliant element 58 is interposed between the first microelectronic element 50 and the second microelectronic element 64. See column 8, lines 5-15.

Claim 2 also calls for a "non-compliant" filler layer provided between the second semiconductor chip and the substrate. In contrast, Solberg teaches curing the curable liquid encapsulant 76 to form a compliant material. The compliant material formed from the curing encapsulant merges with the compliant material of the original compliant element 58 to form a larger compliant element encompassing the first and second microelectronic elements. See column 9, lines 14-20. As such, Solberg fails to teach or suggest the claimed non-compliant filler.

In view of the foregoing, reconsideration and withdrawal of these rejections are respectfully requested.

NEW CLAIMS

New claims 12-22 are added. Claim 12 calls for a size of a surface area of the base member contacting the second semiconductor chip to be substantially equal to a size of a surface area of the first semiconductor chip contacting the second semiconductor chip. Support for this recitation can be found in paragraph 25.

Claim 13 calls for a portion of a surface of the base member contacting the second semiconductor chip to extend beyond an outboard edge of the second semiconductor chip. Support for this recitation can be found in Fig. 1.

Claim 14 calls for a sealing resin disposed between the base layer and the first semiconductor chip. Support for this recitation can be found in Fig. 1 and paragraph 30.

Claim 15 calls for the base member to have a coefficient of thermal expansion which is different from that of at least one of the first and second semiconductor chips. Support for this recitation can be found in paragraph 24.

Claim 16 calls for the filler layer to comprise a thermal setting resin. Support for this recitation can be found in paragraph 35.

Claim 17 calls for the filler layer to comprise a non-conduction material. Support for this recitation can be found in paragraph 36.

Claim 18 calls for the filler layer to comprise a die-bonding material. Support for this recitation can be found in paragraph 36.

Claim 19 calls for a size of a surface area of the filler layer contacting the second semiconductor chip to be substantially equal to a size of a surface area of the

first semiconductor chip contacting the second semiconductor chip. Support for this recitation can be found in paragraph 36.

Claim 20 calls for a size of a surface area of the filler layer contacting the second semiconductor chip to be greater than a size of a surface area of the first semiconductor chip contacting the second semiconductor chip. Support for this recitation can be found in paragraph 36.

Claim 21 calls for the filler layer to include a portion disposed between the first semiconductor chip and the substrate. Support for this recitation can be found in Fig. 2 and paragraph 41.

Claim 22 calls for a viscosity of the portion of the filler layer disposed between the first semiconductor chip and the substrate to be lower than the viscosity of another portion of the filler layer disposed outboard of the first semiconductor chip between the second semiconductor chip and the substrate. Support for this recitation can be found in paragraph 41.

Favorable consideration of these new claims is respectfully requested.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the

Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: _____

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By: _____


G. Gregory Schivley

Reg. No. 27,382

Bryant E. Wade

Reg. No. 40,344

HARNES, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

ATTACHMENT FOR SPECIFICATION AMENDMENTS

The following is a marked up version of the original title of the invention in which underlines indicates insertions and brackets indicate deletions.

SEMICONDUCTOR DEVICE [AND METHOD FOR MANUFACTURING
THE SAME] WITH SEMICONDUCTOR CHIP SUPPORT STRUCTURE

ATTACHMENT FOR CLAIM AMENDMENTS

The following is a marked up version of each amended claim in which underlines indicates insertions and brackets indicate deletions.

1. (Twice Amended) A semiconductor device comprising:
a first semiconductor chip mounted on a substrate;
a second semiconductor chip directly mounted on the first semiconductor chip with an adhesive, the second semiconductor chip [being larger than] extending beyond a perimeter of the first semiconductor chip; and
a base member disposed between the second semiconductor chip and the substrate, said base member being laterally spaced apart from the first semiconductor chip; [and
a connection member disposed below the substrate,]
wherein the second semiconductor chip is supported by the base member.
2. (Twice Amended) A semiconductor device comprising:
a first semiconductor chip mounted on a substrate;
a second semiconductor chip directly mounted on the first semiconductor chip with an adhesive, the second semiconductor chip [being larger than] extending beyond a perimeter of the first semiconductor chip; and
a non-compliant filler layer provided between the second semiconductor chip and the substrate; [and

a connection member disposed below the substrate,]

wherein the second semiconductor chip is supported by the filler layer.

5. (Amended) A semiconductor device according to claim 1, wherein said second semiconductor chip includes [edges] peripheral portions extending beyond said perimeter of said first semiconductor chip which are supported by said base member.

6. (Amended) A semiconductor device according to Claim 1, wherein said base member [is disposed in] further comprises a frame [shape] shaped member surrounding said first semiconductor chip.

7. (Amended) A semiconductor device according to Claim 1, wherein said base member [is a column-like member] further comprises columnar shaped members disposed about said perimeter of said first semiconductor chip.